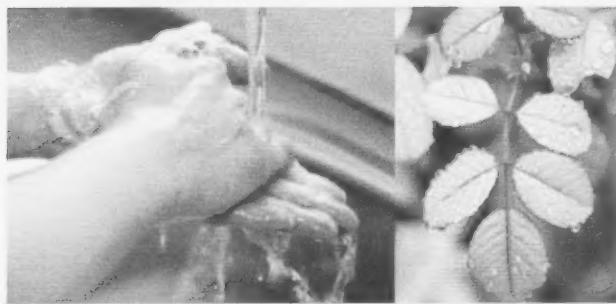


ALBERTA WATER COUNCIL



SEPTEMBER 2008

recommendations for
Water Conservation, Efficiency and
Productivity Sector Planning

About the Alberta Water Council

The Alberta Water Council is a multi-stakeholder partnership with Members from governments, industry, and non-government organizations. All Members have a vested interest in water. The Alberta Water Council is one of three types of partnerships established under the *Water for Life* strategy; the others are Watershed Planning and Advisory Councils, and Watershed Stewardship Groups.

The Alberta Water Council monitors implementation of the *Water for Life* strategy and champions achievement of the strategy's goals. It also advises the Alberta Government, stakeholders and the public on effective water management practices and solutions to water issues, as well as on priorities for water research. Where there is consensus, the Council may advise on government policy and legislation. However, the Government of Alberta remains accountable for the implementation of the *Water for Life* strategy, and continues to administer water and watershed management activities throughout the province.

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Contents

| | |
|---|----|
| Executive Summary and Recommendations | 1 |
| 1. Introduction | 5 |
| 1.1 What is a Sector Plan?..... | 7 |
| 2. The Framework for CEP Sector Planning..... | 8 |
| 2.1 Priority Sectors | 8 |
| 2.2 Pilot Sector Plans..... | 9 |
| 2.3 Timelines for Completing Sector Plans..... | 10 |
| 2.4 The Sector Planning Framework | 11 |
| 2.4.1 Options for Stakeholder Engagement..... | 13 |
| 2.4.2 Framework Steps | 14 |
| 2.5 Criteria for Reviewing Sector Plans..... | 18 |
| 3. Accountability and Evaluation of CEP Work..... | 20 |
| 4. Participation in CEP Planning | 22 |
| 4.1 Encouraging Participation in CEP Planning..... | 22 |
| 5. Implementation and Measuring Progress..... | 24 |
| 5.1 Reporting on CEP Implementation..... | 24 |
| 5.2 Transparency in Reporting | 25 |
| 5.3 New Water Council Team | 26 |
| Appendix A: Annotated Table of Contents for Water Conservation, Efficiency and Productivity (CEP) Sector Planning | 27 |
| Appendix B: Team Members and Terms of Reference | 39 |
| Appendix C: Water Use Definitions | 46 |
| Appendix D: Tools for Stakeholder Consultation | 48 |
| Appendix E: Related Documents | 49 |



Tables and Figures

| | |
|---|----|
| <i>Table 1 — Key Deliverables</i> | 6 |
| <i>Table 2 — Timeline for Completing Sector Plans</i> | 10 |
| <i>Figure 1 — Relationship between Sector CEP Plans and Sector Member CEP Plans and Actions</i> | 7 |
| <i>Figure 2 — Framework for CEP Sector Planning</i> | 12 |

Executive Summary and Recommendations

This document provides the foundation and guidance for water conservation, efficiency and productivity (CEP) sector planning to meet goals and objectives outlined in Alberta's *Water for Life* strategy. The document consists of a Framework, Annotated Table of Contents, and recommendations. Participation of water using sectors in developing and implementing plans to improve water conservation, efficiency and productivity will demonstrate to Albertans their commitment to achieving *Water for Life* objectives.

The Alberta Water Council makes the following 21 recommendations, which also appear in the body of the report:

1. That the irrigation and municipal sector pilot plans become the sectors' formal plans once the plans meet the Criteria for Review of Sector Plans by the Alberta Water Council.
2. That the seven priority sectors have a CEP plan in place by December 2010 (irrigation, municipal, power generation, oil and gas, mining, chemical and petrochemical, and forestry).
3. That sectors use the Annotated Table of Contents document as a guide for the development of their respective CEP plans.
4. That stakeholder consultation occur throughout the development of a sector plan as per the three options (A, B and C) identified in the Framework.
5. That each of the seven sectors present its draft CEP plan to the Alberta Water Council outlining specifically how it meets the Criteria for Review. Individual Alberta Water Council members will be provided with an opportunity to forward comments to the sector on the draft plan prior to its final adoption. It is recommended that a sector consider the comments and provide a response or amend the draft plan as needed.
6. That sectors with CEP plans that have been finalized make their plans public.

7. That sectors produce annual or biennial progress reports to the Alberta Water Council or Alberta Environment summarizing their progress in implementing their plan and achieving desired outcomes. Reports provided to Alberta Environment will be made available to the Alberta Water Council. Each sector should report on the performance measures and targets outlined in its plan in order to track progress against the plan.
8. That CEP reporting by sectors is transparent and desired outcomes identified in the CEP plan are reported as appropriate to the Alberta Water Council, sector stakeholders, Watershed Planning and Advisory Councils, and the public.
9. That in 2012, the Alberta Water Council conducts a formal evaluation of the CEP sector planning process to determine the extent to which the achieved results have contributed to *Water for Life* goals. This would include:
 - a. Reviewing the success of individual sector plans both against their original plan's targets and against actual conservation, efficiency, and productivity outcomes (e.g., water saved). The performance measures outlined in the plans will serve as the primary guide for measuring progress.
 - b. Evaluating whether the approach to sector planning (the Framework, Criteria, and Annotated Table of Contents) is working and whether changes are necessary.
 - c. Recommending enhancements and other changes to the sector planning components (Framework, Criteria, Annotated Table of Contents) as determined by the evaluation. This could include a recommendation to Alberta Environment that they consider mandatory CEP planning such as requiring water licence holders to develop and implement CEP plans.
 - d. Preparing and publishing a report on the success of sector plans in achieving their stated CEP objectives and in particular their contribution towards the *Water for Life* goal of a 30% improvement in water efficiency and productivity.
 - e. Determining whether there is a need for ongoing monitoring and evaluation of the CEP sector planning process.

10. That the Alberta Water Council's Water Allocation Transfer System Upgrade Project Team consider a recommendation to Alberta Environment that transferees (recipients of the transferred water) be required to demonstrate CEP actions in their water use.
11. That Alberta Environment require applicants for new water licences and renewals to consider and propose CEP measures in the licence application process. Where watershed conditions indicate a need, these measures would be reflected in a licence as conditions or determinants of volume.
12. That CEP measures be incorporated into the Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems document published by Alberta Environment at the time of its next review.
13. That the Government of Alberta explore opportunities for incenting CEP activities as part of provincial grants associated with updates to wastewater treatment systems, water supply and other water related infrastructure improvements, and report to a new multi-stakeholder Project Team mid-2009.
14. That Alberta Environment consider rewarding and recognizing achievements in CEP by members of a sector, in alignment with the CEP plan of their sector.
15. That the Alberta Water Council explore opportunities for recognizing sector associations and sector members for CEP initiatives (e.g., recognition by the Alberta Emerald Foundation).
16. That the initial focus of sector planning be on capturing the largest individual water users within a sector or on users representing most of the water use in a sector. A subsequent focus would be on getting all members engaged in CEP activities.
17. That the seven priority sectors outline in their CEP plan how they will encourage their members to report on their water use (i.e., through sector initiatives and/or Alberta Environment's electronic water use reporting system).
18. That Alberta Environment improve participation in electronic water use reporting to ensure that needed information is available to sectors for CEP planning. Alberta Environment should consider mandatory electronic reporting for larger water users as a means to improve participation.

19. That each of the seven priority sectors establish a base year for documenting and measuring CEP gains, and that the base year be an average of any three years in the period 2000 to 2005.
20. That the report be posted to the Water Council's website.
21. That a new multi-stakeholder project team be established for the tasks listed below. This team would have representation from the seven priority sectors, Alberta Environment and other stakeholders identified by the Alberta Water Council.
 - a. To serve as a forum for sectors to share ideas, experiences and challenges in developing and implementing sector plans.
 - b. To receive reports from sectors on progress on CEP planning.
 - c. To provide a venue to discuss challenges, share ideas, and provide assistance if necessary to ensure successful adoption of the multi-stakeholder component in sector planning.
 - d. To evaluate whether the approach to participation as outlined in this report is working and where necessary to recommend improvements that would result in increased participation by individual members of a sector.
 - e. To determine the need for enhancements and changes to the Framework document and Annotated Table of Contents.
 - f. To determine how to assist sector members that may not have the capacity to fully implement CEP plans (e.g., data and reporting components) and to make recommendations for how such assistance might be provided.
 - g. To determine how to aggregate information based on the planned targets and performance measures so as to enable the Alberta Water Council to assess the overall success of CEP plans in achieving *Water for Life* goals and outcomes.
 - h. To prepare a report to the Alberta Water Council on the progress of sector plans in achieving CEP objectives. Data from this report would be used by the Alberta Water Council in its Report on Implementation of the *Water for Life* Strategy.

1. Introduction

Alberta's *Water for Life* strategy was adopted by the Government of Alberta in November 2003. The strategy contained the following three goals:

- Safe, secure drinking water supply
- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy

The strategy also contained three key directions to help achieve the goals, one of which was water conservation; the specific direction states that "Albertans will be leaders in conservation by using water efficiently and effectively." The strategy goes on to say that, "fluctuating and unpredictable water supply in recent years has stressed the need to make some major shifts in how we use and allocate this renewable, but finite, resource." A key action in the strategy is "to prepare water conservation and productivity plans for all water using sectors by 2010." These plans will contribute to achieving the strategy's target of a 30% improvement in overall water efficiency and productivity from 2005 levels by 2015. Water conservation was also identified by the Alberta Water Council as a focus for accelerated action in the *Water for Life* renewal.

The Alberta Water Council agreed that conservation, efficiency and productivity (CEP) plans for water-using sectors would contribute to achieving the *Water for Life* goals. The Alberta Water Council created the CEP Sector Plan Project Team in March 2007.¹ The primary task for this multi-stakeholder team was to develop a framework to guide sectors in preparing their CEP plans.

The work of the Water CEP Sector Plan Project Team (the CEP team) focused on four main areas. Deliverables in these areas are noted in Table 1 and are documented in more detail in subsequent sections of this report.

¹ The team's terms of reference and membership are noted in Appendix B.

Table 1 — Key Deliverables

| Deliverable | Section of the Report |
|---|--|
| Two documents for sectors to follow when developing their CEP sector plans | Section 2, "Framework" and Appendix A, "Annotated Table of Contents" |
| Identify which sectors should develop plans to ensure maximum benefit. | Section 2.1, "Priority Sectors" |
| Evaluate and outline tools to address issues of sector participation and accountability. | Section 2.4, "The Sector Planning Framework"; Section 2.5, "Criteria for Review" and recommendations |
| In conjunction with sectors that are developing CEP plans, identify best management practices and benchmarks for water use. | Appendix A, "Annotated Table of Contents" |

The Framework described in section 2.4 and the Annotated Table of Contents in Appendix A provide detailed guidance to assist sectors in completing their CEP plans. The Framework and the Annotated Table of Contents allow flexibility in sector plan development. The Framework provides direction on the process to be followed when developing a CEP plan, and direction on the process for reporting CEP results to the Alberta Water Council. It also a) ensures that sectors take a collaborative and integrated approach, b) contains mechanisms to encourage participation and accountability, and c) provides direction for addressing conservation, efficiency and productivity goals under the *Water for Life* strategy.

The Annotated Table of Contents describes the content that sectors should address in their CEP plans. The CEP team considered a wide range of best management practices (BMPs) and benchmarks and decided that each sector is unique. The team concluded that each sector should review the BMPs that best fit its circumstances and should select and incorporate BMPs into their CEP plans.

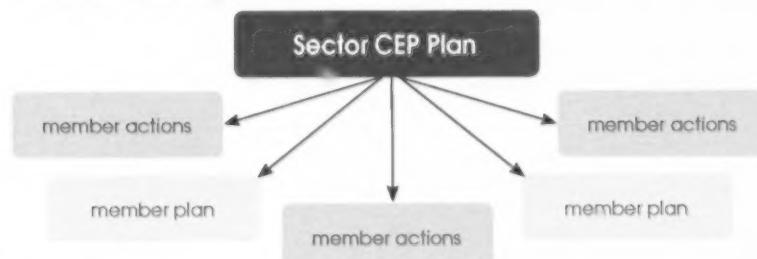
The Alberta Water Council recommends that completed sector plans meet the criteria outlined in section 2.5. Sections 3, 4 and 5 of this report present recommendations to address accountability of sectors for developing and implementing CEP plans and participation of sector members in implementing CEP measures outlined in their sector plans. These include recommendations for a role for the Council in evaluating the success of sector CEP plans in helping to achieve *Water for Life* goals.

1.1 What is a Sector Plan?

The CEP plan for each sector will outline the sector's overall strategy for achieving water conservation, efficiency and productivity objectives. The strategy will include specific goals, objectives and timelines that reflect the circumstances of each sector. The sector plan will contain targets or benchmarks for the sector as a whole, and will provide direction on management practices that individual water users can take to help achieve the sector's overall goals and targets. The Annotated Table of Contents in Appendix A provides detailed guidance on what a sector plan should include.

The expectation is that individual members of each sector will take direction from their sector's overarching plans and develop CEP measures for their own operations (see figure 1). In certain instances individual water licence holders will wish to develop a formal plan. Just as the sector plan will contribute to achieving Alberta's overall CEP goals, as stated in the *Water for Life* strategy, each individual member's actions will help that sector meet its goals and targets.

Figure 1 — Relationship between Sector CEP Plans and Sector Member CEP Plans and Actions



In most cases, a formal sector association will lead the development of CEP plans. In sectors where a formal association does not exist or where not all members of a sector are represented by an association, collaborative processes will be used to develop CEP plans.

2. The Framework for CEP Sector Planning

All water-using sectors identified as priorities in this report are members of the Alberta Water Council and have committed to developing CEP plans. An important premise of the recommendations is that sectors undertake planning in good faith and make every effort to meet the criteria described in section 2.5 before they present their plans to the Alberta Water Council.

The Council recognizes that the 30% target identified in the *Water for Life* strategy applies to the aggregate of all water users in Alberta and is not intended to be an absolute target for each sector. Additionally, in recent years, some sectors have already taken concerted conservation efforts and should be recognized for having done so. Sector plans should be developed with the overall provincial target in mind.

2.1 Priority Sectors

To have the most impact, the Council recommends that the focus for CEP planning should be on those sectors that are the largest water users in the province. The CEP team reviewed data related to current and projected water use by sector and determined that the sectors noted below would be priorities for doing sector CEP plans. Most of these sectors have an association that is expected to play a key role in the development of their plans.

- Chemical and petrochemical
- Forestry
- Irrigation
- Mining/ Oil sands
- Municipal
- Oil and gas
- Power generation

The Council notes that the livestock sector is not a priority sector at this time because its water use is relatively low, there are many small users and the expected CEP gains are not significant. Nevertheless, the livestock industry has agreed to develop a CEP plan and the team was advised there is also interest in doing an overall CEP plan for agriculture. The chemical and petrochemical sector was identified as a priority sector. Although its current

water use is relatively small, this sector is concentrated in specific watersheds in Alberta where its impact may be larger and over the next 10 – 15 years the sector is expected to expand significantly.

While the Framework was developed for the seven priority sectors that are the largest water users in Alberta, it is intended to be used and adapted by other sectors as appropriate. Smaller water users are encouraged to undertake CEP initiatives but these users are not expected to develop formal CEP plans.

2.2 Pilot Sector Plans

Two sectors — municipal and irrigation — volunteered to undertake CEP pilot plans as a means of testing the CEP team's thinking on how sector plans should be developed, what they should contain, and the length of time that might be required to complete and implement a plan. The team welcomed this initiative and identified four purposes of the CEP pilot plans:

1. Information exchange
2. Opportunity for the sector to inform the CEP team about progress and challenges
3. Opportunity for the CEP team to give feedback to a sector on the processes recommended by the team (i.e., Annotated Table of Contents and the Framework)
4. Opportunity to learn and add value to the Annotated Table of Contents and the sector planning process (i.e., the Framework)

The Alberta Urban Municipalities Association (AUMA) is overseeing the development of the municipal sector plan, while the Alberta Irrigation Projects Association (AIPA) is leading the development of the plan for that sector. Both sectors are working closely with their members and other stakeholders to obtain input and encourage widespread participation. Both sectors expect to have their plans completed by January 2009 and would like these to become the official CEP plans for their sector.

Recommendation 1: Formalization of Pilot Sector Plans

That the irrigation and municipal sector pilot plans become the sectors' formal plans once the plans meet the Criteria for Review of Sector Plans by the Alberta Water Council.

During discussions on the two pilot plans, CEP team members identified a need for an ongoing forum where sectors could share experiences and ideas, discuss challenges, and seek advice in doing their sector plans. The Council will create a new multi-stakeholder project team to help meet this need, discussed further in section 5.3 (recommendation 21).

2.3 Timelines for Completing Sector Plans

All sectors noted in this report as priorities for completing sector plans have indicated their intent to do so. In addition to the two pilot plans described earlier (for the municipal and irrigation sectors), all other sectors have begun discussing potential approaches and timelines. The table below shows the expected dates by which the priority sectors expect to complete their CEP plans.

Table 2 — Timeline for Completing Sector Plans

| Sector | Proposed completion date |
|----------------------------|---------------------------------|
| Chemical and petrochemical | December 2010 |
| Irrigation | January 2009 |
| Forestry | Summer 2009 |
| Mining / oil sands | December 2010 |
| Municipal | January 2009 |
| Oil and gas | Fall 2010 |
| Power generation | December 2010 |

Recommendation 2: Timing for Completion of Sector Plans

That the seven priority sectors have a CEP plan in place by December 2010 (irrigation, municipal, power generation, oil and gas, mining, chemical and petrochemical, and forestry).

2.4 The Sector Planning Framework

The sector planning Framework is a complete package to guide sectors in developing these plans, while recognizing that each sector will have its own unique circumstances and will choose the CEP tools and mechanisms that are best suited to its needs. The package includes two main parts:

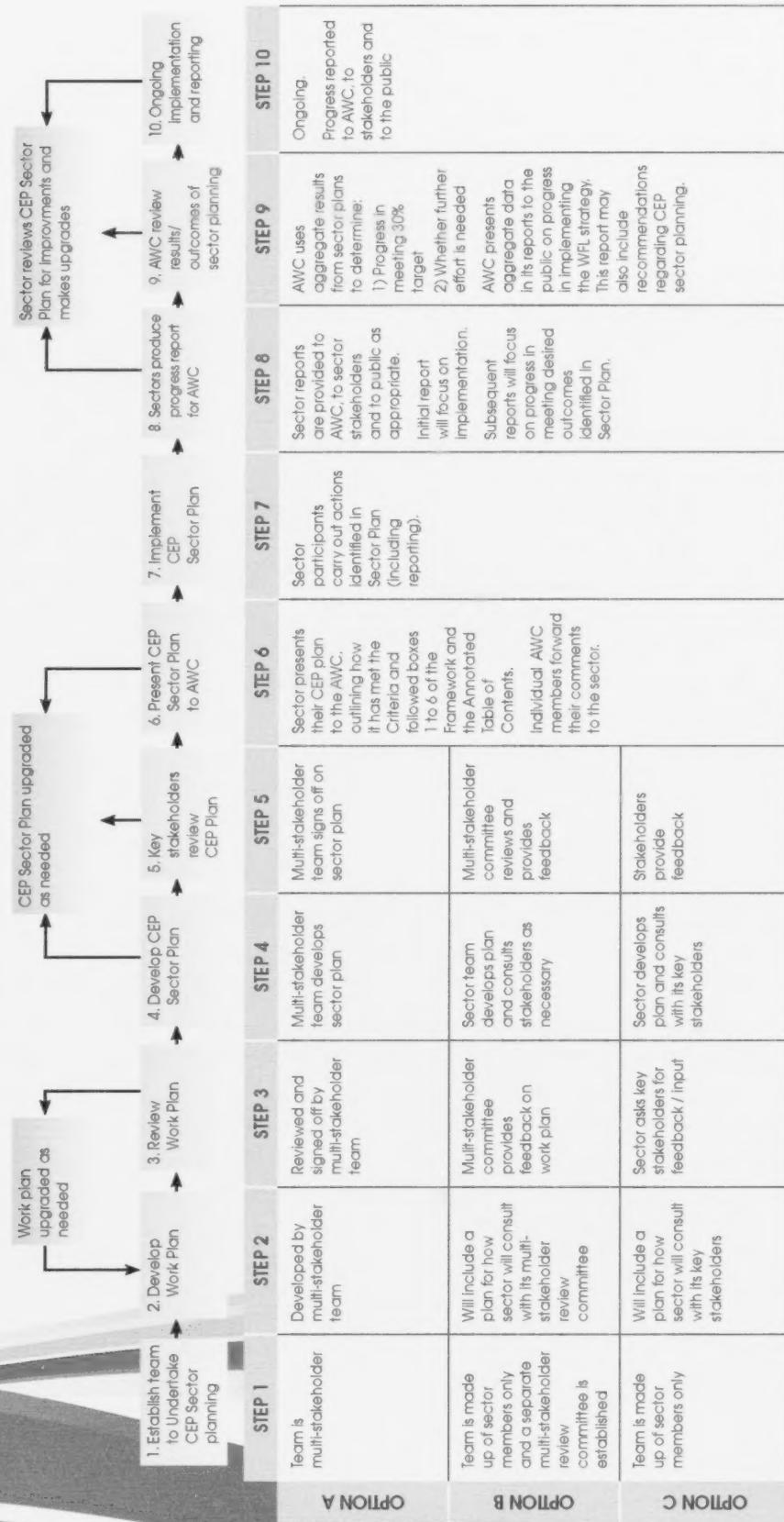
- A Framework (or road map) that describes the process for sectors to follow when preparing a sector plan (illustrated in Figure 2 and described in more detail below). In an effort to ensure sector accountability, the Framework lays out options for stakeholder engagement and clearly identifies the links with the Alberta Water Council.
- An Annotated Table of Contents in Appendix A, which presents the kind of information and level of detail that should be included in a CEP sector plan.

The text in this section (2.4) accompanies and further describes the steps in Figure 2, *Framework for CEP Sector Planning*. The fundamental steps in plan development will be the same for each sector, and within steps 1 through 5, three options are provided, which are described in more detail below. In all cases, a planning team would be responsible for overseeing the development of the sector plan and signing off on it.

Recommendation 3: Use of the Annotated Table of Contents Document by Sectors

That sectors use the Annotated Table of Contents document as a guide for the development of their respective CEP plans.

Figure 2 — Framework for CEP Sector Planning



2.4.1 Options for Stakeholder Engagement

To provide flexibility for sectors, three options are presented for multi-stakeholder consultation, recognizing that some sectors may already have well-established stakeholder consultation processes in place. It will be up to each sector to decide how best to inform and engage its stakeholders, with the understanding that stakeholder engagement is most meaningful if processes are inclusive and transparent. Each sector will choose the best option to meet its needs, knowing that stakeholder engagement is one of the criteria that they are asked to outline in their presentation to the Alberta Water Council. It is expected that sectors will seriously consider and/or respond to concerns raised by stakeholders during this process.

Sectors will decide which stakeholders they need to consult in developing their plan. Sectors are advised to invite participation from the Alberta Water Council, environmental and other non-government organizations, relevant government departments and, where appropriate, Watershed Planning and Advisory Councils. Representation from other sectors that may be affected by the sector's CEP plan or that are developing their own CEP plans could also be sought. Appendix D provides further information on stakeholder engagement tools that CEP planning teams can use to obtain input on their draft plans.

Option A: Team is multi-stakeholder.

Using this approach, the sector would form a multi-stakeholder team at the onset of the process. This team would be composed of members from the sector as well as members from other stakeholder groups that have an interest in the plan. The team would need to agree on a decision-making process, but consensus is preferred.

Option B: Team is made up of sector members only, and a separate multi-stakeholder advisory committee is established.

Sectors using Option B to develop their plan will form a team composed of sector members only. A multi-stakeholder advisory committee will also be formed to review the work plan and draft CEP plan and provide advice and feedback to the sector team before the plan is presented to the Alberta Water Council. The sector team may ask this committee for input a number of times during the planning process. The expectation is that the sector will seriously consider feedback from the multi-stakeholder advisory committee and revise its plan to address the interests raised by this committee.

Option C: Team is made up of sector members only and the sector opts to provide copies of its draft plan to various stakeholders during its development.

With Option C, the plan will be developed and finalized by a team made up of sector members only. The sector will need to take steps to ensure it requests input and feedback from stakeholders and makes any necessary revisions before presenting the CEP plan to the Alberta Water Council.

Option A is the preferred approach to CEP sector planning. A multi-stakeholder team ensures that stakeholder interests and concerns are identified, understood and addressed from the outset. This approach has many potential benefits to sectors including: increased early buy-in from stakeholders, savings of time and resources that would otherwise be needed for more involved consultation later in the process, decreased risk that stakeholders will come forward with significant concerns later on, and greater assurance that new concerns will not arise when the plan is presented to the Alberta Water Council.

2.4.2 Framework Steps

Figure 2 illustrates the sequence of steps that sectors will follow in developing and implementing their sector plans:

- Steps 1 through 5 relate to the stakeholder engagement process and development of the sector plan.
- Step 6 involves the presentation of the CEP plan to the Alberta Water Council.
- Steps 7 through 10 describe implementation of the plan and the process for reporting on progress.

Sectors are expected to develop their plans in good faith and to work to identify and address stakeholder concerns before presenting a draft plan to the Alberta Water Council.

Step 1: Establish team to undertake CEP sector planning

Each sector is expected to ensure that a variety of interested stakeholders are involved or, at a minimum, consulted. The option selected (A, B or C) will determine the composition of the team that prepares the CEP sector plan and the extent to which stakeholders are engaged in the planning process. Most of the seven priority sectors (as identified in section 2.1) have an umbrella association that is expected to manage the logistics of forming the team and, if option B is chosen, establishing the multi-stakeholder review committee. Once the team is formed, it will decide how it wants to manage the plan's preparation.

Step 2: Develop work plan

To ensure timely completion of the sector plan and allocation of a realistic budget, the team will develop a comprehensive work plan that describes time lines; deliverables; high level outcomes for the CEP plan; a process for reviewing and evaluating best management practices; a process for establishing targets and benchmarks; a budget; and assignment of responsibilities. For options B and C, the work plan will also describe how the sector will undertake the necessary stakeholder consultations to ensure wider input to the draft plan. Sectors may have sensitive information that could be difficult to share with others so will need to consider this factor in deciding what information they want to provide.

Step 3: Review work plan

Reviewing the work plan gives sectors and other interested stakeholders a chance to identify additional points and to review the key task areas for completeness. The work plan review also ensures that stakeholders are aware of important meeting dates and other key dates well in advance. Thus, to some extent, the work plan will be an evolving document. For Options B and C, following input from other stakeholders, the team will consider the feedback and make adjustments to the work plan as required.

Step 4: Develop CEP sector plan

Developing the CEP sector plan is the focus of the team's work. Using the Annotated Table of Contents as a guide and drawing on stakeholder knowledge and interests in water use within the sector, the team prepares a draft plan to improve conservation, efficiency and productivity within its sector. Sectors that choose option A (a multi-stakeholder team) should be able to complete this work in less time than those that choose option B or C, as the latter options must allow time for a separate stakeholder involvement process. The team is not limited in who it invites to be part of its plan development process, however, at a minimum, it should consider involving those sectors that are represented on the Alberta Water Council.

In addition to setting CEP objectives for an entire sector, sector plans are intended to guide individual members of a sector (such as individual companies, municipalities) to undertake CEP activities. Thus the sector plan may identify CEP opportunities that can be implemented by all members of a sector or by a portion of a sector, as appropriate. However, the Council recommends that the initial focus should be on capturing the largest users or on users representing most of the water use in a sector.

Step 5: Key stakeholders review sector plan

This step is an opportunity for sectors to ensure their plans adequately reflect stakeholder input before they present their plan to the Alberta Water Council. For sectors using Option A, this step will be straightforward, as the team that developed the plan will simply sign off when members reach agreement. Options B and C will require review by others external to the team.

Step 6: Present draft CEP sector plan to Alberta Water Council

Irrespective of whether option A, B or C is chosen for stakeholder engagement, sectors from the seven priority sectors will present their draft CEP plans to the Alberta Water Council board of directors. During this presentation they will outline specifically how the plan meets the Criteria for Review. Individual Alberta Water Council members will have an opportunity to forward their comments to the sector on the draft plan prior to its final adoption.

Step 7: Implement CEP sector plan

After a draft CEP plan is presented to the Alberta Water Council, the sector will begin to implement it. This will include implementation of CEP measures outlined in the plan, and reporting on CEP progress by sector members to the sector association responsible for the plan (if applicable). A new Alberta Water Council multi-stakeholder project team, which will include representatives from the seven priority sectors along with other stakeholders, will be involved in framework steps 7 through 10. Among other things, this team will act as a forum and sounding board for sectors' ideas, experiences and challenges; provide feedback to sectors at key junctures; receive progress reports from sectors on planning and implementation; and determine how to assist sector members that may not have the capacity to fully implement CEP plans. A key task for this team will be to develop a mechanism for reporting on the overall or aggregate results of all CEP plans in moving towards the *Water for Life* goal of a 30% improvement in water efficiency and productivity by the year 2015.

Step 8: Sectors produce regular progress report for the Alberta Water Council

Monitoring and reporting are key elements in successfully implementing CEP plans. Sectors will be expected to provide annual or biennial progress reports to the Alberta Water Council board, as well as to their own stakeholders and to the public. During the first four years of implementation of the Framework for CEP Sector Planning, these reports will emphasize the sector's progress in implementing plans and where available the sector's success in meeting the targets or benchmarks that have been set in its CEP plan.

Step 9: Alberta Water Council reviews results and outcomes of sector planning

The Alberta Water Council is responsible for publishing regular reports on progress in implementing the *Water for Life* strategy. Sector activities in support of *Water for Life* targets, particularly the 30% improvement in efficiency and productivity, will be quantified as aggregate results from sector plans and will be included in the Alberta Water Council's Review of Implementation Progress for *Water for Life*.

Step 10: Ongoing implementation and reporting

Implementation and reporting will be ongoing, as sectors are expected to identify opportunities for continuous improvement and incorporate these into their CEP plans. The Council suggests that sector plans should outline future dates for formal reviews as these reviews would provide an opportunity to incorporate improvements such as new management practices and changes in technologies.

2.5 Criteria for Reviewing Sector Plans

To help ensure consistency across sectors, the Council has developed a set of criteria to be used by sectors when they present their draft CEP plan to the Alberta Water Council. Sectors are asked to meet the criteria to demonstrate that they have addressed the key elements of the Framework and the Annotated Table of Contents. The Alberta Water Council will not “approve” CEP plans; instead individual Water Council members may use these criteria as a basis for which to provide feedback to sectors on their draft CEP plans.

- ✓ 1. When implemented, the plan will result in the continuous improvement of water conservation, efficiency and/or productivity.
- ✓ 2. The plan identifies benchmarks and measurable CEP targets (as described in section 4.3 of the Annotated Table of Contents). The plan must:
 - a. Support the outcomes of the *Water for Life* strategy.
 - b. Support one or more the following CEP desired outcomes:
 - Demand for water is reduced.²
 - Water use productivity is increased.³
 - Water use efficiency is improved.
 - c. Maintain the following:
 - Resources are conserved to maintain healthy aquatic ecosystems.²
 - Water quality is maintained or enhanced.²
- ✓ 3. The plan demonstrates that the sector has reviewed and analyzed potential CEP opportunities and selected those that have the greatest opportunity for achieving CEP improvements (recognizing that they must be economically achievable).

² CEP outcome defined by the Alberta Water Council's Water Conservation, Efficiency and Productivity Definitions Project Team.

- ✓ 4. The plan outlines an implementation schedule (see section 5.1 of the Annotated Table of Contents) that includes:
 - a. A description of actions a sector will take to meet CEP targets.
 - b. An outline of tools that will be used by the sector to facilitate implementation by sector members.
 - c. Recommendations for improving involvement of individual sector members in implementing the plan.
 - d. An outline of short, medium and long-term goals.
- ✓ 5. The plan outlines the process used to involve stakeholders in the development of the plan and describes how stakeholder interests have been addressed through one of the following:
 - a. A multi-stakeholder team developed the plan and consulted with broader constituencies as consistent with option A of the Framework.
 - b. The sector planning team undertook a stakeholder engagement strategy as part of the planning process.
 - c. The sector engaged stakeholders beyond their own sector members (i.e., external stakeholders) and stakeholder concerns and interests were considered in the plan.
- ✓ 6. The plan outlines how sector CEP activities will be monitored, evaluated and revised to measure CEP improvements and facilitate continuous improvement (see section 5.3 of the Annotated Table of Contents).
- ✓ 7. The plan describes the sector's process for ongoing reporting to the Alberta Water Council, to its stakeholders, and to Alberta Environment on the extent to which the plan is meeting its objectives and performance measures for the sector.
- ✓ 8. The plan generally includes components outlined in the Annotated Table of Contents or provides a rationale for not including any components in the plan.

3. Accountability and Evaluation of CEP Work

The CEP Project Team spent considerable time discussing the issue of accountability; specifically, the need for mechanisms to hold sectors accountable for doing CEP plans. The Council acknowledges that the seven priority sectors are committed to a best efforts approach to sector planning and, at this time, there is no need for a regulatory approach to sector CEP plans. Because accountability is essential to the success of sector planning the Council proposes the following recommendations as a means of ensuring that sectors follow through on their commitment to develop and implement CEP plans.

Recognizing that sector accountability is essential to the success of CEP planning, the Council makes the following recommendations:

Recommendation 4: Stakeholder Consultation

That stakeholder consultation occur throughout the development of a sector plan as per the three options (A, B and C) identified in the Framework.

Recommendation 5: Use of Criteria to Review Sector CEP Plans

That each of the seven sectors present its draft CEP plan to the Alberta Water Council outlining specifically how it meets the Criteria for Review. Individual Alberta Water Council members will be provided with an opportunity to forward comments to the sector on the draft plan prior to its final adoption. It is recommended that a sector consider the comments and provide a response or amend the draft plan as needed.

Recommendation 6: Sector CEP Plans Available to the Public

That sectors with CEP plans that have been finalized make their plans public.

Recommendation 7: Progress Reports by Sectors

That sectors produce annual or biennial progress reports to the Alberta Water Council or Alberta Environment summarizing their progress in implementing their plan and achieving desired outcomes. Reports provided to Alberta Environment will be made available to the Alberta Water Council. Each sector should report on the performance measures and targets outlined in its plan in order to track progress against the plan.

Recommendation 8: Transparency in Sector Reporting

That CEP reporting by sectors is transparent and desired outcomes identified in the CEP plan are reported as appropriate to the Alberta Water Council, sector stakeholders, Watershed Planning and Advisory Councils, and the public.

Recommendation 9: Evaluation of CEP Work

That in 2012, the Alberta Water Council conduct a formal evaluation of the CEP sector planning process to determine the extent to which the achieved results have contributed to *Water for Life* goals. This would include:

- a. Reviewing the success of individual sector plans both against their original plan's targets and against actual conservation, efficiency, and productivity outcomes (e.g., water saved). The performance measures outlined in the plans will serve as the primary guide for measuring progress.
- b. Evaluating whether the approach to sector planning (the Framework, Criteria, and Annotated Table of Contents) is working and whether changes are necessary.
- c. Recommending enhancements and other changes to the sector planning components (Framework, Criteria, Annotated Table of Contents) as determined by the evaluation. This could include a recommendation to Alberta Environment that they consider mandatory CEP planning such as requiring water licence holders to develop and implement CEP plans.
- d. Preparing and publishing a report on the success of sector plans in achieving their stated CEP objectives and in particular their contribution towards the *Water for Life* goal of a 30% improvement in water efficiency and productivity.
- e. Determining whether there is a need for ongoing monitoring and evaluation of the CEP sector planning process.

4. Participation in CEP Planning

The success of sector CEP plans in meeting their sector goals and objectives will in large part depend on activities taken by individual water users within a sector. The Council recognizes that some sector members are already making significant CEP gains. The intent is to focus first on the largest water users in a sector, but eventually all members should be encouraged to participate in CEP planning. More widespread participation could be a focus for future efforts; that is, ensuring that all members of a sector have opportunities to participate in CEP planning. As Alberta Water Council members, industry sectors are committed to CEP planning, and it is expected that sector plans will be developed in good faith, reflecting commitment to achieve real progress in water conservation, efficiency and productivity.

4.1 Encouraging Participation in CEP Planning

Recognizing that successful implementation of a sector plan requires active involvement by individual sector members, the Council makes the following recommendations.

Recommendation 10: Adoption of CEP Measures and Participation in a Water Transfer System

That the Alberta Water Council's Water Allocation Transfer System Upgrade Project Team consider a recommendation to Alberta Environment that transferees (recipients of the transferred water) be required to demonstrate CEP actions in their water use.

Recommendation 11: Consideration of CEP Measures in Water Licence Applications

That Alberta Environment require applicants for new water licences and renewals to consider and propose CEP measures in the licence application process. Where watershed conditions indicate a need, these measures would be reflected in a licence as conditions or determinants of volume.

Recommendation 12: Incorporation of CEP Measures into Municipal Standards and Guidelines

That CEP measures be incorporated into the Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems document published by Alberta Environment at the time of its next review.

Recommendation 13: Opportunities to Encourage CEP Activities in the Granting Process

That the Government of Alberta explore opportunities for incenting CEP activities as part of provincial grants associated with updates to wastewater treatment systems, water supply and other water related infrastructure improvements, and report to the Council's new multi-stakeholder project team mid-2009.

Recommendation 14: Recognition of CEP Achievements by Alberta Environment

That Alberta Environment consider rewarding and recognizing achievements in CEP by members of a sector, in alignment with the CEP plan of their sector.

Recommendation 15: Other Opportunities to Recognize CEP Achievements

That the Alberta Water Council explore opportunities for recognizing sector associations and sector members for CEP initiatives (e.g., recognition by the Alberta Emerald Foundation).

Recommendation 16: Focus on the Largest Users

That the initial focus of sector planning be on capturing the largest individual water users within a sector or on users representing most of the water use in a sector. A subsequent focus would be on getting all members engaged in CEP activities.

5. Implementation and Measuring Progress

Following the presentation of draft CEP sector plans to the Alberta Water Council (step 6 of the Framework), the plan will be implemented in step 7. Implementation progress will be reported on in steps 8 through 10, with improvements identified as opportunities arise. The Council expects it will be a year or more between the implementation of a sector plan and seeing CEP improvements. In the meantime, sectors would continue with their normal reporting processes to government, stakeholders and the public.

5.1 Reporting on CEP Implementation

Each sector plan will describe a process for how that sector intends to report on implementation progress, keeping in mind the particular needs and approach for the sector. Regular reporting will be crucial to measuring progress in improving water conservation, efficiency and productivity. In the first year or two following the development of a sector plan, the sector would be expected to report on its implementation progress and to begin assembling data.

Recommendation 17: Reporting by Sector Members

That the seven priority sectors outline in their CEP plan how they will encourage their members to report on their water use (i.e., through sector initiatives and/or Alberta Environment's electronic water use reporting system).

Recommendation 18: Improvements in Electronic Water Use Reporting

That Alberta Environment improve participation in electronic water use reporting to ensure that needed information is available to sectors for CEP planning. Alberta Environment should consider mandatory electronic reporting for larger water users as a means to improve participation.

Recommendation 19: 2005 as Base Year

That each of the seven priority sectors establish a base year for documenting and measuring CEP gains, and that the base year be an average of any three years in the period 2000 to 2005.

The *Water for Life* strategy, published in 2003, indicated that 2005 should be used as the base year for measuring gains in conservation, efficiency and productivity. However, in 2005 many parts of Alberta experienced significant flooding. The CEP team felt that since 2005 was not a typical year, flexibility in choosing a base year was needed.

The team identified that sectors are using water use terms inconsistently and inaccurately, which may cause confusion during setting of baseline targets and reporting on achievements. The CEP team has included a statement of need regarding water use terms and definitions in Appendix C.

5.2 Transparency in Reporting

Transparency in reporting is important because many stakeholders have an interest in how water is used and conserved. In addition, public reporting is an opportunity for sectors to share their successes and to educate a wider audience about water use and the benefits of CEP activities.

Recommendation 20: Public Availability of Report

That the report be posted to the Water Council's website.

5.3 New Water Council Team

A key element in securing improvements in water conservation, efficiency and productivity will be the formation of a new multi-stakeholder project team by the Alberta Water Council. As described in section 2 and in step 7 of the Framework, this team will have a significant role in assisting sectors in the development and implementation of sector plans during the first three years of implementing the Framework. The focus of this team will be to provide support to sectors to help them develop and implement their plans. It is expected that sectors will provide reports to this team.

Recommendation 21: Establishing a New Team

That a new multi-stakeholder project team be established for the tasks listed below. This team would have representation from the seven priority sectors, Alberta Environment and other stakeholders identified by the Alberta Water Council.

- a. To serve as a forum for sectors to share ideas, experiences and challenges in developing and implementing sector plans.
- b. To receive reports from sectors on progress on CEP planning.
- c. To provide a venue to discuss challenges, share ideas, and provide assistance if necessary to ensure successful adoption of the multi-stakeholder component in sector planning.
- d. To evaluate whether the approach to participation as outlined in this report is working and where necessary to recommend improvements that would result in increased participation by individual members of a sector.
- e. To determine the need for enhancements and changes to the Framework document and Annotated Table of Contents.
- f. To determine how to assist sector members that may not have the capacity to fully implement CEP plans (e.g., data and reporting components) and to make recommendations for how such assistance might be provided.
- g. To determine how to aggregate information based on the planned targets and performance measures so as to enable the Alberta Water Council to assess the overall success of CEP plans in achieving *Water for Life* goals and outcomes.
- h. To prepare a report to the Alberta Water Council on the progress of sector plans in achieving CEP objectives. Data from this report would be used by the Alberta Water Council in its Report on Implementation of the *Water for Life* Strategy.

Appendix A: Annotated Table of Contents for Water Conservation, Efficiency and Productivity (CEP) Sector Planning

This Annotated Table of Contents is meant to guide sectors in their conservation, efficiency and productivity (CEP) planning. Your sector is asked to consider all of the components identified in this document; however it is recognized that some of these components address topics, issues and questions that may not be applicable to your sector. In the case that a component is not applicable, your sector is asked to provide a brief explanation of why it has not been addressed in your CEP plan. It is also the responsibility of your sector to determine the geographical focus of your CEP plan (e.g., watershed(s), region(s), province).

1.0 Overview of CEP Sector Plan

1.1 Goals and Objectives of CEP Sector Plan

Goals and Objectives. Describe the goal(s) and/or objective(s) of this sector plan. Identify your sector's CEP target (or targets), as it relates to these goals and objectives.

Future Vision. Describe the future vision for your sector's water use (e.g., water quantities used, types of water use, water sources) in the watersheds in which it operates.

Water for Life. Describe how the goals, objectives and future vision of this plan will support the principles, goals and outcomes outlined in the *Water for Life* strategy.

- **Principle:** Albertans must become leaders at using water more effectively and efficiently, and will use and reuse water wisely and responsibly.
- **Goals:** 1) safe, secure drinking water supply, 2) healthy aquatic ecosystems and 3) reliable, quality water supplies for a sustainable economy.
- **Outcomes:** 1) all sectors are demonstrating best management practices and improving efficiency and productivity associated with water use (2007 – 2010); and 2) water is managed and allocated to support sustainable economic development and the strategic priorities of the province (2010 – 2014).

CEP Definitions*

Water conservation:

1. Any beneficial reduction in water use, loss, or waste.
2. Water management practices that improve the use of water resources to benefit people or the environment.

Water efficiency:

1. Accomplishment of a function, task, process, or result with the minimal amount of water feasible.
2. An indicator of the relationship between the amount of water needed for a particular purpose and the quantity of water used or diverted.

Water productivity:

The amount of water that is required to produce a unit of any good, service, or societal value.

*As defined in the Alberta Water Council's report entitled Water Conservation, Efficiency and Productivity: Principles, Definitions, Performance Measures and Environmental Indicators.

1.2 Scope of Plan

Describe your sector in the context of this plan:

- What is your sector trying to achieve (i.e. what is the service or product you provide)?
- In what geographical area does this plan apply (e.g., entire province, region, watershed, community)? Are there areas in which your sector operates that are not included in this plan? If yes, please explain.
- What subsectors or companies make up your sector plan? What were the criteria for selecting participating subsectors or companies?

1.3 The Case for Water CEP

Provide the reasons for developing this CEP plan:

- What is the value of CEP improvements as they relate to your sector (e.g., increased profit, minimized production risks associated with water scarcity, source water protection)?
- What are the risks associated with your sector not improving CEP (e.g., economic, environmental and social risks)?
- Who are your stakeholders (external to the sector) and what are the potential benefits to them?
- Identify any other economic, social and environmental benefits that may result from the CEP improvements outlined in this plan. For example, do your current water uses have impacts at the community, watershed, regional, provincial, national or international level that would be alleviated through this plan?

1.4 CEP Plan Champion and Leaders

Champion(s). Identify who is ultimately responsible for the development, approval, implementation and renewal of your CEP plan on behalf of your sector. Describe the organization championing your plan (e.g., what is its business? who are its members? how does it operate?).

Leaders. Identify sector members that will take or are already taking a leadership role in implementing CEP opportunities recommended in this plan.

2.0 Profile of Existing Water System(s)

2.1 Water Use Profile

2.1.1 Physical Characteristics

Describe the geographical area this plan is intended to cover [e.g., watershed(s), region(s), province].

Identify large existing facilities located within the area and infrastructure (including those not owned/managed by your sector) that are important to your sector in managing its water.

2.1.2 Baseline Water Use

Water Licence Conditions. Describe the general conditions of current water licences and approvals as they relate to: the purpose of the licence, volume of water, point of diversion, return flow, expiry date, water recycling, seasonal variation, minimum flow variation, etc.

Actual Water Use. Describe actual water use as it relates to: volume diverted in relation to allocation, the proportion of water use that is consumptive (not returned to the source), return flow volumes, seasonal variation (as they relate to production patterns), etc.

Water Sources. Describe current sources of your water supply (e.g., A% surface water, B% groundwater, C% rainwater, D% recycled, E% conservation). Identify water sources that may be showing signs of stress (e.g., do your operations affect IFN and natural flow regimes positively or negatively?).

Note: Some sectors will have more data available than others to establish a baseline for water use. Data may be obtained based on average users or BMPs being used.

2.1.3 Description of Key Water Uses/Users

- Describe the major water use processes within your sector.
- Describe customers served and/or goods or services provided. Provide a breakdown of the quantity of water currently needed per one unit of good or service produced.

2.2 Linkages with other Water Systems and Operating Parameters

Note: This section is meant to be general and considered from the broadest possible perspective.

Concurrent Water Uses. Describe any concurrent uses of your water (i.e. discretionary operating parameters).

- E.g., return flow water used in irrigation may provide benefits to wetlands before returning to a river.
- E.g., a municipality may rely on irrigation infrastructure for their water supply.
- E.g., a municipality may rely on a power generation systems to maintain instream flows to avoid ice jams.

Normal Operating Parameters. Describe the normal operating parameters of your water system:

- Operational limitations — e.g., licence conditions designed for environmental protection purposes may restrict seasonal water withdrawals.
- System limitations — e.g., sectors may know their future production demand will increase but their current infrastructure (e.g., pipeline capacity) may not be able to handle the projected demand increase.

2.3 Review of Current Policies, Programs, Plans and Legislation

2.3.1 Related Policies, Programs and Plans

Describe any policies, programs or plans already in place that affect your sector's water use under normal conditions and/or contingency plans for droughts, floods or other occurrences beyond the normal control of the sector.

These may be a combination of large-scale sector wide initiatives and smaller scale initiatives by sector members.

Policies, programs and plans discussed in this section may include: water supply plans, capital improvement project plans, drought mitigation plans, environmental management systems (e.g., ISO 14001), pollution prevention plans, the Environmental Farm Plan, Hazard Analysis and Critical Control Points (HACCP) programs, food safety policies (i.e. Canadian Quality Milk), the Responsible Care program, Watershed Management Plans and the Water Conservation and Allocation Policy for Oilfield Injection.

2.3.2 Related Legislated Conditions or Clauses

Provide a general overview of any municipal, provincial or federal legislation that impacts your sector's water use (in addition to the Water Act licence terms and conditions described in section 2.1.2). These may include: Environmental Protection & Enhancement Act, Canadian Environmental Protection Act, Fisheries Act, Irrigation Districts Act and municipal bylaws (e.g., Land Use Bylaws, sewer bylaws, riparian protection bylaws).

2.4 Sector History of CEP

- Describe any CEP efforts made to date and results achieved (e.g., gains in water CEP, partnerships established, positive and negative environmental impacts).
- Identify achievements that have been made since the start of Water for Life in 2003.
- Describe barriers to implementation of CEP opportunities that have been encountered in the past. Explain how these were overcome or why they have not been overcome.

3.0 Water Supply and Demand Considerations

3.1 Water Demand Forecasting

Note: Demand forecasting may be done sector wide or it may be done by individual sector members or a combination of both. It is up to a sector to determine how demand forecasting will be completed.

Demand Forecasting Methodology. Describe the methods used to forecast future water demand and why these were chosen. Identify assumptions made in forecast and factors affecting demand such as projected population increases and economic growth.

Demand Forecast Results. Present the results of your demand forecasts for various scenarios. These may include the following:

- E.g., Business as Usual (without CEP improvements)
- E.g., Pessimistic (with minimal CEP improvements)
- E.g., Optimistic (with maximum CEP improvements)
- E.g., Others (e.g., eliminating the use of water altogether)

Note: It is recognized that credible forecasting is limited to roughly 10 years.

3.2 Water Supply Considerations

Identify current and future water supply considerations for your sector:

- In order to contribute to *Water for Life* goals and realize the vision, goals and objectives of this plan, what supply of water will be available to your sector in the future? For example, how might the protection of healthy aquatic ecosystems and the demands of other water users impact the water supply that is available to your sector?
- How would the above demand forecasts contribute (positively and/or negatively) to *Water for Life* goals and the ability of your sector to realize the vision, goals and objectives of this plan?

4.0 Overview of Opportunities for CEP

4.1 Identification of all CEP Opportunities

Identify and provide an overview of all ideas for CEP opportunities that may exist for members of your sector. In this section, sectors are encouraged to stretch their thinking beyond business as usual and strive towards creative approaches to environmental improvement. It is recognized that many of these opportunities may have barriers to implementation and may not be economically feasible or practical at this point in time. However, sectors are encouraged to explore all options in this plan as this analysis may help to identify future CEP opportunities as well as identify ways to address barriers and make opportunities feasible.

Questions to consider:

- Assuming you had no more new water sources available to you, where could you get the most gains in CEP?
- How might your sector be able to deliver its goods or services using less water? Are there goods or services where the use of water can be eliminated completely?
- What is the quality of the water currently used in delivering your sector's goods and services (e.g., potable, saline)? Is it necessary to maintain this same level of quality to produce future goods and services?
- How might your sector manage its water use so that social and environmental sustainability is protected (e.g., manage water to withdraw less and/or increase return flow)?
- Are there common large infrastructure and/or processes used across sectors that present CEP opportunities (e.g., water pipelines, cooling towers)?
- What CEP opportunities (e.g., BMPs) are being used in other jurisdictions that might be applicable in Alberta?
- Are there future considerations such as research and development or commercialization of new technology that may facilitate future CEP gains?

Table 1 below provides some examples of CEP opportunities that exist but this list is not complete. Sectors are in the best position to identify opportunities that may be applicable to their business. It is recognized that many opportunities will contribute to a combination of conservation, efficiency and productivity gains.

Table 1 — Examples of CEP opportunities

| Type of CEP Opportunity | Examples |
|---|--|
| <i>Conservation: Demand-Side Management</i> | <ul style="list-style-type: none"> ■ reduce average annual day demand ■ reduce annual peak day demands and peaking factors ■ reduce wastewater flows ■ shift demand ■ reduce water lost through "consumptive uses" (e.g., evaporation, oilfield injection, water contained in manufactured food and beverages) |
| <i>Conservation: Supply-Side Management</i> | <ul style="list-style-type: none"> ■ off stream storage ■ on stream storage (e.g., dams) ■ improvements in utilization of existing storage ■ new water supplies (e.g., use of non-saline water from coalbed methane, the City of Edmonton's water reuse pipeline) ■ desalination of saline water from industrial activities |
| <i>Efficiency</i> | <ul style="list-style-type: none"> ■ enable or improve leak detection and repair programs ■ increase recycling and reuse of water/wastewater within an operation ■ install new water efficient equipment ■ find alternatives to using water as a solvent or carrier (design water out of system processes) |
| <i>Productivity</i> | <ul style="list-style-type: none"> ■ increase productivity of output per unit of water ■ shift water uses to those that produce higher value goods and services |
| <i>Environmental*</i> | <ul style="list-style-type: none"> ■ modify water management practices to protect aquatic ecosystems ■ build stormwater retention ponds to improve water quality ■ explore opportunities to restore water back to a river ■ minimize quantity of water diverted in the winter to address problems with dissolved oxygen levels |

*There may be some environmental opportunities that if adopted by a sector contribute to *Water for Life* goals but not directly to gains in conservation, efficiency and productivity. Sectors are encouraged to adopt environmental opportunities in their plan in conjunction with other CEP opportunities.

4.2 Analysis of CEP Opportunities

Provide an overview of the screening process and criteria used to determine which CEP opportunities provide the greatest potential to your sector. Table 2 below provides a list of screening criteria that your sector may consider using in its analysis. These criteria should align with the goals, objectives and future vision outlined in section 1.1 of this plan.

Provide an analysis of all CEP opportunities using the criteria described in your screening process. It is understood that some criteria may not be applicable to all CEP opportunities.

Table 2 — Examples of CEP screening criteria

| Screening Criteria | Description |
|--|---|
| 1 | Water Savings Estimate of total water use savings. |
| 2 | Net Cost Evaluate the potential net \$ costs (anticipated expenditures minus savings in capital and operating costs) needed to implement CEP opportunities. |
| 3 | Cost (\$) / Benefit ratio Compare the net cost (2) with the water savings benefit (1). |
| 4 Environmental Opportunities, Impacts & Considerations | <p>Identify the potential positive opportunities and/or negative impacts of CEP improvements on the natural environment. These include impacts on aquatic ecosystems, groundwater systems and the ecological services provided by aquatic ecosystems (e.g., wetlands help improve water quality, reduce flood peaks and recharge groundwater aquifers).</p> <p>E.g., What impact does the CEP opportunity have on meeting water conservation objectives³, instream flow needs⁴ and/or a natural flow regime for a river?</p> <p>E.g., Is water use non-consumptive (returned to the source) or consumptive?</p> <p>E.g., What is the quality of water used to produce the good or service (e.g., can lower quality water be used for the same service)?</p> <p>E.g., What is the quality of water returning to the environment after use?</p> <p>E.g., What impacts does your water use have at a watershed level (e.g., what are the positive and negative impacts on water run off, aquatic ecosystems or wildlife)? In some sectors, these impacts may include land use considerations (e.g., groundcover practices to protect ground water quality).</p> <p>Describe any geographic considerations that may impact the applicability and effectiveness of CEP opportunities. For example, a CEP opportunity that is effective in one watershed may not be effective in another.</p> |

³ As outlined in Alberta's Water Act, a water conservation objective is the amount and quality of water established by the Director to be necessary for the (i) protection of a natural water body or its aquatic environment, (ii) protection of tourism, recreational, transportation or waste assimilation uses of water, or (iii) management of fish or wildlife, and may include water necessary for the rate of flow of water or water level requirements.

⁴ Instream Flow Need (IFN) is the scientifically determined amount of water, flow rate, or water level that is required in a river or other body of water to sustain a healthy aquatic environment or to meet human needs such as recreation, navigation, waste assimilation, or aesthetics. An in-stream need⁴ is not necessarily the same as the natural flow. (Water for Life)



| Screening Criteria | | Description |
|--------------------|--|--|
| 5 | Social Impacts | Identify the potential positive and/or negative social impacts of CEP opportunities. For example, CEP opportunities may impact aquatic ecosystems that have cultural, heritage and scientific values, as well as a rich diversity of plant and animal life, and support a variety of human uses, such as fisheries and recreation. |
| 6 | Linkages with Other Sectors | Identify the positive and/or negative impacts CEP opportunities may have on other sectors. For example, large increases in flows at certain times of the year may have positive or negative impacts on downstream neighbours. |
| 7 | Barriers or Constraints | Identify possible constraints to CEP opportunities and how they may be overcome (e.g., removing barriers). For example, in the case that a policy is outdated or does not exist, a new policy tools may be identified to make CEP more feasible. |
| 8 | Percent Participation by Sector/Subsector | Describe the readiness of your sector to adopt identified CEP opportunities. For example, do sector members already believe in the benefits that may result in their investment in a new CEP technology or their adoption of a BMP? |
| 9 | Availability of Technology | Describe the availability of technologies needed to adopt CEP opportunities. Does tested and reliable technology exist? |
| 10 | Timelines for Implementation | How much time would be needed to implement CEP opportunities? Is this time frame conducive to achieving CEP goals and objectives outlined in this plan? Are there things can be done immediately, in the short term, and in the long term? |
| 11 | Available Resources | Is there sufficient funding and human capital available to implement and manage CEP opportunities? |
| 12 | Risk | Describe the potential risks related to CEP opportunities (e.g., economic, environmental, social). Identify options for mitigating risks. |
| 13 | Sustainability of CEP Opportunities | Are CEP opportunities sustainable in the long term? For example, in some sectors a behavioural change to achieve CEP gains may be more sustainable in the long term than investing in new infrastructure that will have expensive maintenance costs in the future. In other sectors, the opposite may be true. |
| 14 | Public and Stakeholder Engagement / Consultation | Describe any public and/or stakeholder engagement or consultation that your sector has undertaken relating to CEP opportunities and the results. |

4.3 Selected/Recommended CEP Opportunities and Targets

Sector Target. Provide a detailed description of your sector's broad CEP target (as outlined in section 1.1). How was your target determined and how does it compare with water use benchmarks⁵ set by leading sectors in other jurisdictions (e.g., provincially, nationally and internationally)?

There are many ways targets can be set within this plan. For example:

- Sectors may wish to consider using staged targets.
- Targets may be set sector-wide or they may be specific to individual sector members.
- Targets may not necessarily be numeric. For example, a sector may not identify specific water CEP quantities but may aim to maintain the current system or gather baseline data in order to set targets in the future. Targets may also include improvements in the water quality being returned to the environment, improved rates of water recycling and reuse, etc.

Recommended CEP Opportunities. Provide a detailed description of the suite of CEP opportunities that are recommended for implementation by members of your sector (as determined by your screening process).

- Explain how these will contribute to your sector meeting its sector target(s) identified above.
- Outline SMART⁶ targets for each of your sector's chosen CEP opportunities. Describe how these targets compare to benchmarks from other jurisdictions (e.g., what volumes of water are used for specific BMPs used in other jurisdictions to produce the same good or service)?
- Identify which members of your sector are being asked to implement these opportunities.
- Identify strategies for success with CEP opportunities such as approaches for minimizing negative impacts and risks identified in the screening process.

⁵ Benchmark is defined as a measurement or standard that serves as a point of reference by which the performance of a process, components or system is measured. Benchmarks are used for comparing performance against that of others in the same sector in an effort to identify more efficient and effective processes for achieving intended results (no reference — this definition was developed for the purpose of the CEP Sector Plan Working Group).

⁶ Specific, Measurable (establish consistent criteria for measuring performance), Achievable (challenging, but not unrealistic for best performing organizations), Realistic (ensure the measures are practical and cost effective), Timescale (targets need to be set against an appropriate time scale to provide optimum effect)

5.0 CEP Plan Implementation and Monitoring

5.1 Implementation Schedule

Describe the actions your sector will take to encourage members to adopt recommended CEP opportunities. Your implementation schedule may be broken down into short-term (e.g., 1 – 3 years) and long-term actions (e.g., greater than 3 years). See Table 3 for examples of actions that may be identified in this implementation schedule.

Table 3. Examples of actions that may be undertaken by a sector

| Type of Action | Examples |
|--------------------------|--|
| Education and Awareness | <ul style="list-style-type: none"> ■ Develop and/or administer education programs (e.g., workshops) to promote CEP. |
| Technical Support | <ul style="list-style-type: none"> ■ Develop manuals and other technical tools to assist members of your sector in making CEP improvements. |
| Research and Development | <ul style="list-style-type: none"> ■ Conduct research to narrow or eliminate information gaps that exist as barriers to making decisions about CEP (e.g., information to inform target setting or to identify water system inefficiencies). ■ Conduct research to enable the adoption of CEP opportunities by sector members now and/or in the future. ■ Make available new or emerging technologies that are not yet available to the sector on a large scale. |
| Pilot Projects | <ul style="list-style-type: none"> ■ Pilot new or emerging CEP technologies that are in development in laboratory conditions, but as of yet are unproven in field applications. |
| Measurement Program | <ul style="list-style-type: none"> ■ Survey water users or conduct market research in order to determine baseline water use or practices. |
| Public Involvement | <ul style="list-style-type: none"> ■ Hold workshops or conduct surveys to gather input from the public regarding your CEP plan. |
| Resources | <ul style="list-style-type: none"> ■ Describe the proposed budget and staffing needed to implement the described plan. |

5.2 Integration with Other Plans

Describe the linkages between this plan and other work or planning that is occurring in the region(s) in which your sector operates. How will your plan contribute to goals and objectives of other plans (e.g., watershed management plans developed by Watershed Planning and Advisory Councils) and how will the activities outlined in your plan be integrated with the efforts of other groups working on water management issues?

5.3 Monitoring and Reporting

One of the actions outlined in *Water for Life* is the establishment of an on-going monitoring program to ensure all sectors are achieving water conservation and productivity objectives. Describe how your sector plan will contribute to an ongoing monitoring program.

Performance Measurement. Describe the performance measures to be used by your sector to determine progress towards the CEP goals, objectives and targets as outlined in this plan. This may include measures for determining 1) the progress of your sector in carrying out actions that encourage the adoption of CEP opportunities and 2) the progress of your members in making CEP improvements.

Monitoring /Auditing. Describe the process your sector will use for monitoring participating members to ensure that they are meeting their commitments to CEP. For example, is the sector to engage 3rd party consultants to audit x number of companies to ensure they are implementing agreed to recommendations.

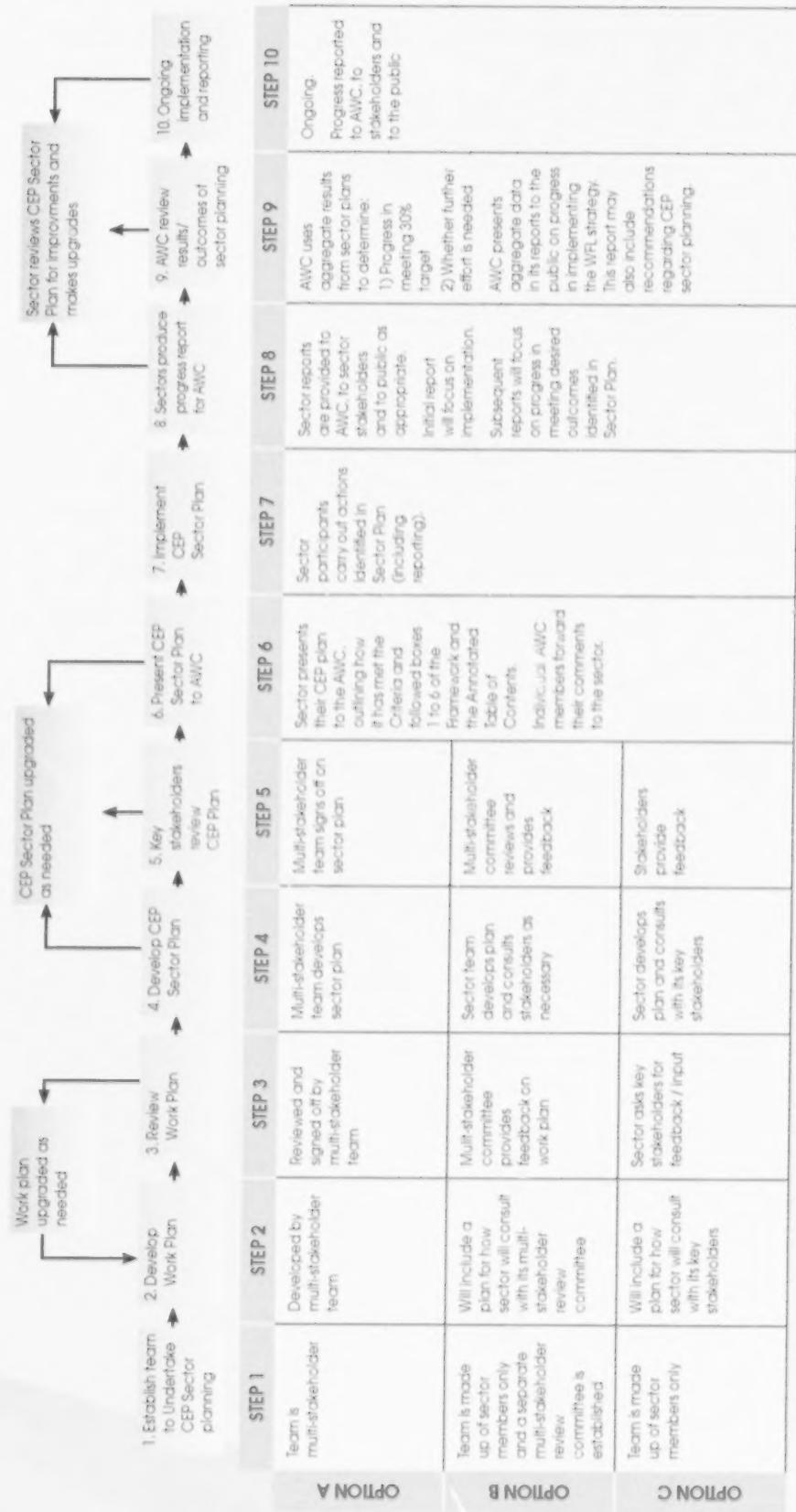
Reporting. Describe how your sector will report CEP plan implementation progress and actual CEP improvements to the Alberta Water Council, the public and other interested stakeholders.

Evaluation and Continuous Improvement. Describe how and when your CEP plan implementation will be evaluated and when or on what basis it will be updated. Not only will evaluation provide sectors with an opportunity to identify changes needed to improve the results of their plans, but evaluation will enable continual adaptive management to emerging issues such as climate change, potential water shortages, ecosystem deterioration, new forms of pollution and new policies developed to address emerging issues.

6.0 Participation and Accountability

The Framework outlined in Figure A-1 below provides an overview of the options for CEP planning process. Section 2.4 of the Water Conservation, Efficiency and Productivity Sector Planning Report provides a detailed description of these options.

Figure A-1 — Framework for CEP Sector Planning



Identify how companies that have committed to implementing CEP measures will be held accountable for implementation. For example,

- Are there already or will there be Cooperative Management Agreements and/or Environmental Performance Agreements? If yes, identify who these agreements are between (Government of Alberta, Alberta Water Council, sector associations), and describe their conditions. Will third party audits be required?
- Identify who is responsible and who is accountable for implementation.
- How will a level playing field be maintained among your sector's members? For example, smaller operations that haven't been identified to develop CEP plans may be at an advantage relative to others that are required to develop CEP plans and implement recommended CEP opportunities.

7.0 Summary and Recommendations

8.0 Glossary

9.0 Bibliography

10.0 Appendices

10.1 Facts and Figures

10.2 Tables

10.3 Internal Reports

Attach any relevant reports developed by your sector.

10.4 External Reports

Attach any relevant case studies and reports used for your sector planning from external sources on best management practices, best available technologies and other CEP initiatives.

10.5 Agreements

Include copies of relevant agreements (e.g., Environmental Management System, Memorandum of Understanding, licence conditions).

10.6 Measures Not Considered at This Time

Appendix B: Team Members and Terms of Reference

The following individuals were active members of the Water CEP Sector Plan Project Team during the completion of this report:

| Member | Stakeholder Group |
|-------------------|---|
| Giselle Beaudry | Alberta Environment (Alberta Water Council secretariat) |
| Kent Bullock | Alberta Irrigation Projects Association |
| Jerry Cunningham | Métis Settlements General Council |
| Rowland Davies | Alberta Lake Management Society |
| Danielle Drottsch | Water Matters |
| Les Gammie | EPCOR Water Services |
| Scott Hillier | ConocoPhillips |
| Roger Hohm | Alberta Agriculture and Food |
| Mike Kelly | TransAlta Corporation |
| Christine Macken | Project Manager/Facilitator |
| Bunny Mah | Agriculture and Agri-Food Canada |
| George Murphy | Alberta Environment |
| Carrie Selin | Intensive Livestock Working Group |
| Jeff Shipton | Millar Western |
| Nancy Stalker | City of Calgary |
| Don Thompson | Alberta Chamber of Resources |
| Les Wetter | Ducks Unlimited |

The team would also like to recognize the following individuals who contributed to this work through participation as a former team member, as an alternate team member or as a contributor along the way:

- Lauren Baldwin, Alberta Urban Municipalities Association
- Meghan Beveridge, Bow Riverkeeper
- Roger Drury, TransAlta Corporation
- Paul Esko, City of Calgary
- Melanie Gray, EPCOR Water Services
- David Hill, formerly Alberta Irrigation Projects Association
- Becky Horvath, TransAlta Corporation
- Gillian Kerr, Alberta Environment
- Tim LeClair, formerly Métis Settlements General Council
- Melissa Logan, Alberta Lake Management Society
- Steph Neufeld, EPCOR Water Services
- Robert Raimondo, EPCOR Water Services
- Rich Smith, Intensive Livestock Working Group
- Lindsay Telfer, Sierra Club — Prairie Chapter
- Neil Wandler, Alberta Environment

Terms of Reference — Water Conservation, Efficiency and Productivity SECTOR PLAN Project Team

Adopted by Council on: March 27, 2007

Background / Context:

Water for Life has established three goals: 1) safe, secure drinking water supply, 2) healthy aquatic ecosystems, and 3) reliable, quality water supplies for a sustainable economy. Meeting these goals will require the participation of water using sectors in improving water conservation, efficiency and productivity (CEP) in their operations. The Water Conservation Efficiency and Productivity Sector Plan Project Team will prepare a document for the development and implementation of a series of sector plans addressing water use by each of the sectors.

The Working Group (WG) recognizes that while all sectors can realize benefits from CEP plans, some will be in a position to benefit more than others. It is expected that CEP plans will benefit Albertans, the environment and sectors by:

1. Demonstrating stewardship of water through an open and transparent process.
2. Identifying and implementing where feasible, world-class Best Management Practices (BMPs).
3. Identifying (and developing) new technologies that can be transferred within a sector, among sectors or geographically to other locations to improve CEP.
4. Identifying where common opportunities for improvements may occur across sectors.
5. Identifying opportunities that will save sectors money.
6. Informing/educating Albertans on the ways sectors use and manage water.

7. Allowing sectors and watersheds flexibility in making water management decisions, which reflect the diversity of needs within sectors, between sectors, and across watersheds.
8. Identifying gaps in knowledge (common to sectors) where further research may be necessary.

Integrating the work of the sector plan project team with the work of GOA initiatives (e.g., online water use reporting), and other project teams (e.g., Shared Governance Project Team) is important. This integration will ensure that consistent outcomes for conservation, efficiency & productivity are identified, activities are tracked to avoid duplication, and timelines for completion of activities are as coordinated as possible. Of equal importance is the need to ensure planning at all levels is coordinated and complimentary (e.g., among companies, sectors, Watershed Planning and Advisory Councils).

The deliverables provided by the project team will help ensure a common understanding of sector water use on the part of Albertans, and will instill confidence that the approaches taken by water users are prudent. The deliverable will also contribute to the successful achievement of *Water for Life* outcomes.

The following areas are identified for work by a sector plan project team:

1. Prepare a document [annotated Table of Contents] for sectors to follow when developing their CEP sector plans. This document will identify elements to be addressed by all sectors in plans, and identify which elements will be required versus optional. These elements may include (list is for illustrative purposes only):
 - Where and how is water used (e.g., withdrawals, reuse, consumptive use, return flow)?
 - What volume of water do you use to produce a unit of any good, service or societal value (i.e. productivity)?
 - What is currently driving water demand?

- What might future water demand look like (e.g., in 5, 10, 50 years) and what factors may impact this demand?
- What and where are there opportunities for CEP improvements (e.g., technology, water management)?
- Where is research needed?
- What are the environmental constraints regarding water availability and source (i.e. "constraints" in this context refer to "protection of the aquatic ecosystem")?
- How will a sector plan contribute to the three *Water For Life* goals?
- In relation to the three *Water for Life* goals, where might a sector CEP plan have a negative, positive or neutral impact on all other concurrent or dependant water uses (i.e. recreational and tourism uses)?
- How will CEP targets be determined and what are the proposed timelines for improvements?
- How will the development of sub-sector and company plans be promoted within a sector (e.g., through some type of strategic or communications plan)?
- Outline the level of multi-stakeholder participation/consultation.
- How will existing company plans and sector plans be integrated?
- How will sector plans be integrated with the work of Watershed Planning and Advisory Councils?

2. Identify which water-using sectors/sub-sectors require the development of sector plans (based on criteria such as volume of water used, impact on the environment, potential for CEP gains, etc.). Recommendations will also be made on determining an approach for small sectors and subsectors.
3. Evaluate and outline tools that may be used to address issues of participation and accountability (e.g., generic "negotiated agreements" between the Alberta Water Council and sector Associations, policies, rewards). These tools will consider the need for the following:
 - Involving broad sector participation in developing CEP plans (e.g., Where possible this may be done through umbrella organizations that represent sectors/sub-sectors. However, participation will be challenging in sectors where there are large numbers of water licence holders but no umbrella organization representing their interests).
 - Ensuring that CEP plans include elements identified (in the document referred to in #1 above) as minimum requirements.
 - Identify an "approval" process(es) that ensures consistency among sector plans, encourages sectors to go beyond status quo when setting targets, and ensuring sectors meet or exceed identified targets set out in plans.
 - Ensuring consistent, unbiased and accurate reporting.
 - Ensuring targets and timelines outlined in plans are established and met.
 - Ensuring a transparent process.

4. Work with sectors to collect the following information for future education and target-setting purposes. The WG recognizes that individual sectors are in the best position to gather this information.

- Best management practices (BMPs) for water conservation, efficiency and productivity by sector.

- Benchmark⁷ water use information by sector.

The AWC believes that by addressing the areas noted above, sectors, Watershed Planning and Advisory Councils and the public will better understand:

- What elements must be considered/addressed by all sectors in the development of sector plans to ensure that plans:
 1. Contribute to *Water for Life* goals.
 2. Are consistent across sectors, and geographically across watersheds.
 3. Reflect a collaborative and integrated approach to managing water and watersheds at all levels.
- Which sectors/sub-sectors are required to develop sector plans and what the relative value is of each of these sectors/sub-sectors in developing plans.
- Examples of tools that address issues of participation and accountability of sectors and the AWC and WPACs. This includes statements outlining implementation, measurement, reporting and transparency.
- What best management practices (local and worldwide) are available as references for sectors and as educational resources for the public (recognizing that not all BMPs will be suitable for implementation across Alberta).

- What benchmark water use information is available by sector and where Alberta sectors rank in their water use in relation to the best performers in the world.

This work will be based on sound science and technical approaches already used or applied elsewhere.

This work is an important step in ensuring consistency in sector plan development across sectors and geographically across watersheds.

The Project Team will strive to ensure that the expectations and understanding surrounding these areas are consistent with the intent of the outcomes, and directions as described in *Water For Life* (environmental, economic and social goals), and with the outcomes, principles and definitions of conservation, efficiency and productivity approved by the AWC.

Guiding Principles:

Team members will support the following shared principles:

- Members will work in accordance with the AWC document, "Guidelines for Participating in Council Work".
- Teamwork relies on effective information sharing between project team members and their stakeholders. Team members will support this process by providing relevant, timely and accurate information for consideration from sectors and report decisions made by the project team back to sectors.
- Principles of sound management will be followed such that the Secretariat, under the guidance of the co-chairs, will prepare agendas that are followed with minutes recorded and distributed to team members in a timely manner.

⁷ A measurement or standard that serves as a point of reference by which the performance of a process, components or systems is measured. Benchmarks are used for comparing performance against that of others in the same sector in an effort to identify more efficient and effective processes for achieving intended results (no reference — this definition was developed for the purpose of the WG).

- Team members will ensure that relevant issues are brought to the table for discussion, with emphasis on resolving those issues by means of consensus. The process for consensus will adhere to the definition provided in the AWC's ToR.
- Failure to reach consensus on an issue by the project team will be referred to the AWC for discussion, with a summary of the issue and the differing viewpoints.

Team Goals/ Results / Expectations:

The AWC expects the team to provide:

- a. A written document that identifies elements to be included in a sector plan. This document will assist sectors in developing their sector plan. The document will outline the process by which sectors will develop a plan, as well as a framework for how sector planning would be pursued across multiple water using sectors.

NOTE: In this sentence, "outline the process" is not meant to be prescriptive. It is meant to be general in nature to ensure issues such as balanced representation during sector CEP planning are addressed. The "framework" for how sector planning would be pursued is intended to ensure sector plans are consistent and address common goals under WFL.

- b. A list of which sectors require sector/sub-sector plans.
- c. An example(s) of tools for addressing sector participation and accountability (e.g., a cooperative management agreement).
- d. Examples of BMPs for consideration by sectors in their sector planning and for public information.
- e. Examples of water use benchmarks to be used by sectors/sub-sectors.

These will provide consistent understanding on the criteria, accountability, implementation and reporting by sectors on sector plans. In addition, they will provide the public with a clear understanding of what BMPs are available for industry sectors, and where Alberta industry ranks with respect to their use of water in relation to the best performers in the world.

Key Tasks:

The Team will:

1. Hold regular meetings to maintain involvement and momentum towards completing its tasks.
2. Develop a workplan of key tasks/deliverables (including confirmation of the proposed budget), and the timeframes associated with completing the tasks.
3. Report regularly to the AWC. This will be done by the co-chairs with support from the Secretariat as per the timeline below.
4. Consult with sectors to ensure issues are identified for discussion, and a common and thorough understanding of decisions made by the project team are relayed back to sectors.
5. Ensure that the materials it develops use language that is appropriate and understandable to a broader public audience.
6. Gather information necessary to complete its tasks. Information may be obtained from any appropriate sources. In cases where critical information is not readily available, the team will explore options to fill these needs including contracting the services of consultants. Project team members should rely on readily available documents and other research in these areas to assist them.

The project team will be assisted by a Secretariat.

Schedule of Key Deliverables:

The team will report to the AWC at the specified intervals below to give the Council an opportunity to provide feedback and approval at key direction points before the team proceeds to the next stage. This will ensure the AWC is fully engaged and takes a leadership role in the project as it moves forward. Deliverables [and proposed timeframes for completion] include:

- Completion of a document for sectors to follow when developing their CEP plans [Annotated Table of Contents] [June 2007].
- Identification of which sectors should develop plans to ensure maximum benefit [June 2007].
- Outlining and evaluating tools to address issues of sector participation and accountability [September 2007]
- Identify Best Management Practices and benchmarks for water use [Ongoing. To be undertaken in conjunction with sectors in development of CEP plans].
- Project team co-chairs will report on team progress at each AWC meeting.

Budget:

It is the responsibility of the AWC to provide a budget to the team for items such as employing a professional minute taker, consultant costs for specific projects including information collection, workshop facilitation, and research to fill information gaps. Other costs may be incurred through team membership (e.g., travel costs).

An estimated budget of \$75,000.00 is required for fiscal year 2007 – 2008. There is an expectation of substantial in-kind sector participation.

Team Structure / Membership:**Membership**

Members of the project team will represent the interests of their broad sector. It is important that the major water using sectors are represented on the project team.

- Industry — one representative from each major sector. Sectors considered for inclusion include: Agriculture, Chemicals/Petrochemicals, Forestry/pulp & paper, Irrigation, Mining, Municipal, Oil & Gas, and Power Generation.
- Provincial Government — two representatives
- Government (non-provincial) — three representatives
- ENGO — three representatives

There is an expectation that this project team will be hard-working, demanding a significant amount of time on the part of sector representatives. Project team representatives must clearly identify the sectors they will be representing and consulting throughout the project.

Depending upon agenda items to be discussed at meetings, sectors may request an individual that is not a regular member of the team to attend the meeting. This is acceptable provided the sector makes the request to the co-chairs or the Secretariat and obtains their approval ahead of the planned meeting.

Project team members will select the co-chairs by consensus at their first meeting.

With the agreement of the team, individual team members may be requested to work on identified tasks, and report back to the team at a later date.

Role of Co-Chairs

- Chair meetings;
- Clarify the AWC's expectations of the team;
- Ensure the team has adequate support to efficiently and effectively carry out its Terms of Reference;
- Inform the team of other programs and initiatives so the team can avoid duplicating work being addressed elsewhere; and
- Serve as liaison to the AWC and Government.

Role of Team Members

Members are expected to attend meetings regularly and provide relevant, timely and accurate information for the team's consideration. Team members should consult with their sectors to ensure issues are identified for discussion by the Team, and decisions made by the Team are relayed back to sectors. Members missing more than three consecutive meetings without reasonable cause will be asked to be replaced through consultation with the respective agency/sector they represent.

Alternate Members

Team members may send an alternate in their place if they are unable to attend a meeting. The team member named as the formal designate to the team is responsible to remain informed about current discussions.

Role of Secretariat

Under the guidance of the co-chairs, the Secretariat will prepare agendas, coordinate meetings, record discussions, and develop progress and final reports that reflect the teams' direction in a succinct and unbiased manner.

In co-operation with the Secretariat, a secretary will record meeting discussions and prepare a set of succinct written minutes, including Action Items to the team.

The Secretariat will reasonably assist individual team members with communication to their sectors when requested (and agreed to) by team members.

Significant Parameters or Constraints:

Water users in Alberta are many and varied, which presents a significant challenge to the development of a single province-wide document to guide all sector plans. This variability is coupled with the fact that the water supply is also variable (in time and space) across the province and projected demands in water use for economic production are often beyond the control of the water user. Unpredictable environmental conditions (e.g., drought) places additional pressures on water supplies. Recreational and other social uses of water are likely to increase.

Additional considerations that could influence the work of the project team include:

- Timing and outcomes of the Shared Governance Project Team's work that will outline the roles and responsibilities of Government, WPACs/WSGs with respect to water/watershed management;
- The availability and effectiveness of economic instruments, policies and other tools for influencing sector participation; and
- Changing legislative and regulatory considerations for water.

Appendix C: Water Use Definitions

Statement of Need Regarding Consistency of Water Use Definitions⁸

The project team identified that sectors are using water use terms inconsistently and inaccurately, which may cause confusion during the setting of baseline targets and reporting on achievements. For example, water allocation and water diversion are used interchangeably yet allocations are the maximum allowable amounts of water that may be diverted and are often significantly more than what is actually diverted.

The team believes there is a need to develop consistent and accurate definitions for water use for the purpose of setting baselines and reporting on achievements. The team recognizes the following definitions as a good starting point and has added notes to bring further clarity.

Water allocation is the amount of water that can be diverted for use, as set out in water licences and registrations issued in accordance with the *Water Act*. Allocations include a maximum amount of water that can be withdrawn for use as well as the rate of withdrawal, the water source, the purpose for which the water is to be used, and the location at which the diversion can occur. Allocations reflect the amount of water that will be consumed plus any losses that might occur, and may include an allowance for flows that are returned after use. An allocation is generally based on the maximum amount of water that an applicant expects will be required over the licensing period.

Note: Allocations are the maximum allowable amount and are often significantly more than what is actually used.

Water diversion (or withdrawal) describes the amount of water being removed from a surface or groundwater source, either permanently or temporarily. Water diversions may be less than water allocations in those situations where the licence includes an allowance for some water to be returned to water bodies after use.

Water consumption is the amount of water included in an allocation that is expected to be used for the intended purpose (e.g., crop production, oilfield injection) and is not available for reuse.

Note: Water consumed does not include water that is available for reuse as well as water that is returned to a water source.

Losses refer to water included in an allocation that can be withdrawn for a particular use but may be lost, either due to evaporation or seepage, and is not available for immediate reuse.

Note: Water lost does not include water that is available for reuse as well as water that is returned to a water source.

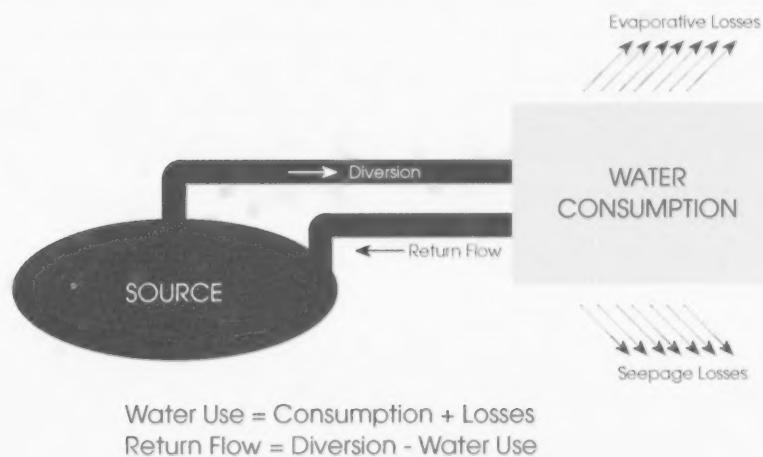
Return flow denotes water that is included in an allocation and is expected to be returned to a water body after use and may be available for reuse, although the water quality characteristics may have changed during use. Typical return flows include discharges from sewage treatment plants, run-off from irrigated fields, and water discharged from cooling ponds. Not all return flow, however, is returned to the original source of diversion or withdrawal.

⁸ The definitions in this section are taken from Battle River Basin Water Use Study (Watrccon Consulting, 2005). The italicized Notes have been added by the team for clarification.

Water use is considered to be the combination of actual water consumption and losses or, alternatively, represents the difference between the amount of water actually diverted and the return flow.

A graphical representation of these terms and their definitions is provided in Figure C-1.

Figure C-1 — Key Water Use Concepts and Terms⁹



⁹ This chart was taken from Battle River Basin Water Use Study (Watrccon Consulting, 2005).

Appendix D: Tools for Stakeholder Consultation

Stakeholder Consultation Resources

Various organizations have developed manuals, toolkits and other documents that provide guidance for good stakeholder consultation, including the following:

- International Association for Public Participation: www.iap2.org
- International Association of Facilitators: www.iaf-world.org
- Canadian Association of Petroleum Producers: www.capp.ca
- Canadian Rural Partnership: www.rural.gc.ca

Non-Government Organizations (NGOs)

The Alberta Water Council has identified the following five broad categories of non-government organizations with an interest in water issues under which a number of NGOs are represented:

1. Environmental

Organizations in this sector are organized under the Alberta Environmental Network (AEN), which is a non-profit, non-partisan umbrella organization dedicated to helping preserve and protect Alberta's environment. Membership in the AEN is open to any non-profit, non-governmental organization demonstrating sincere concern and action toward a healthier environment. AEN co-ordinates environmental organization participation in Alberta Government and other multi-stakeholder consultations, working groups and conferences.

Website: www.aenweb.ca

Mailing Address:

Alberta Environmental Network
2-6328A 104 Street NW
Edmonton AB T6H 2K9

Phone: 780.439.1916

Fax: 780.433.3792

2. Fisheries Habitat Conservation

The Fish Habitat Conservation Collective consists of the following organizations:

- Alberta Conservation Association
- Alberta Fish and Game Association
- Alberta Riparian Habitat Management Society
- Angling Outfitters Association of Alberta
- Nature Conservancy of Canada (Alberta)
- Trout Unlimited Canada — Alberta Chapter

3. Lake Environment Conservation

- Alberta Lake Management Society

4. Watershed Planning and Advisory Councils

The Watershed Planning and Advisory Council Collective consists of the following Watershed Planning and Advisory Councils:

- Battle River Watershed Alliance
- Beaver River Watershed Alliance
- Bow River Basin Council
- Lesser Slave Watershed Council
- Milk River Watershed Council Canada
- North Saskatchewan Watershed Alliance
- Oldman Watershed Council
- Red Deer River Watershed Alliance
- South East Alberta Watershed Alliance

Watershed Planning and Advisory Councils under development include the Athabasca WPAC.

For more information on these WPACs and for contact information visit: www.waterforlife.gov.ab.ca/watershed/planning_advisory_councils.html.

5. Wetland Conservation

- Ducks Unlimited Canada

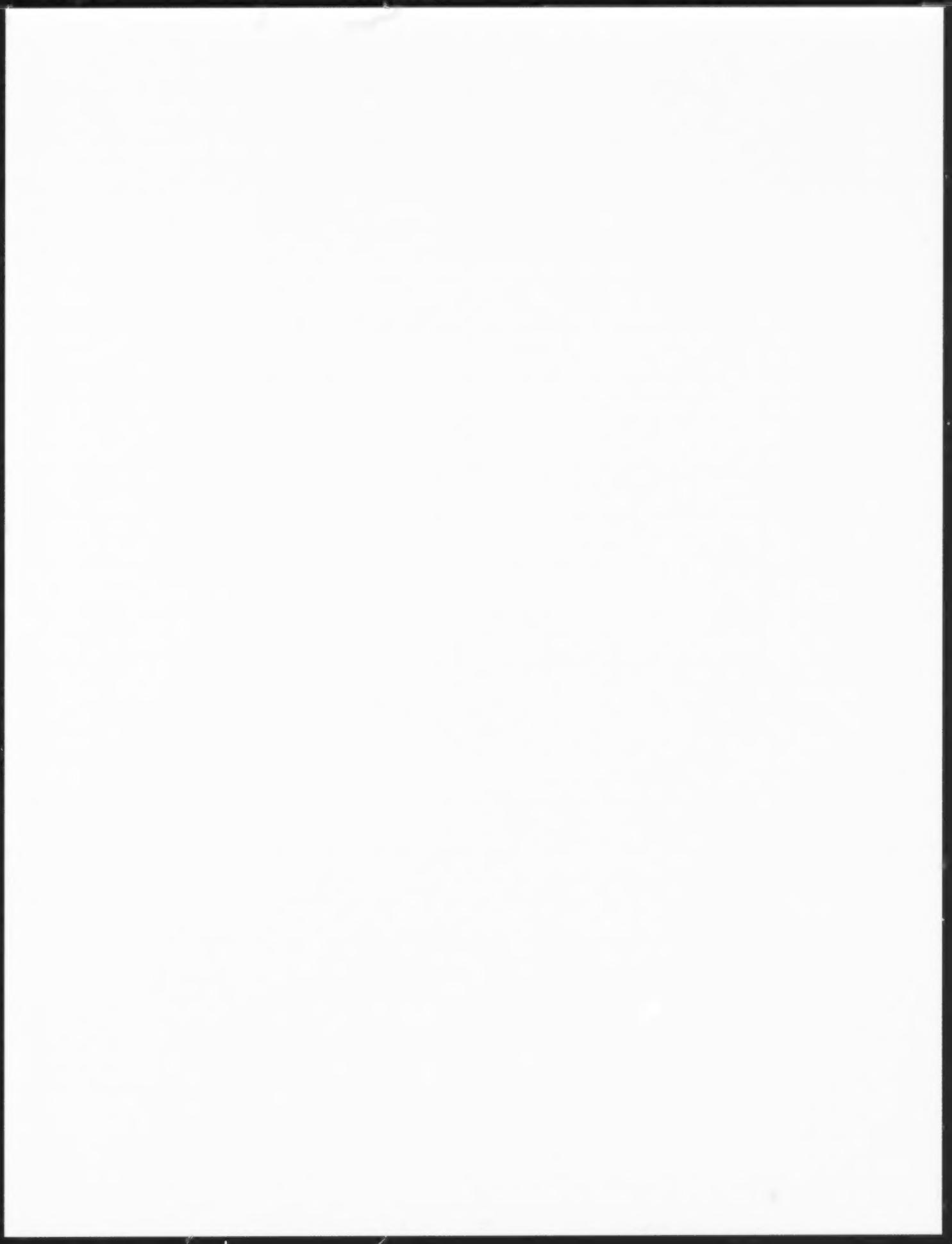
Appendix E: Related Documents

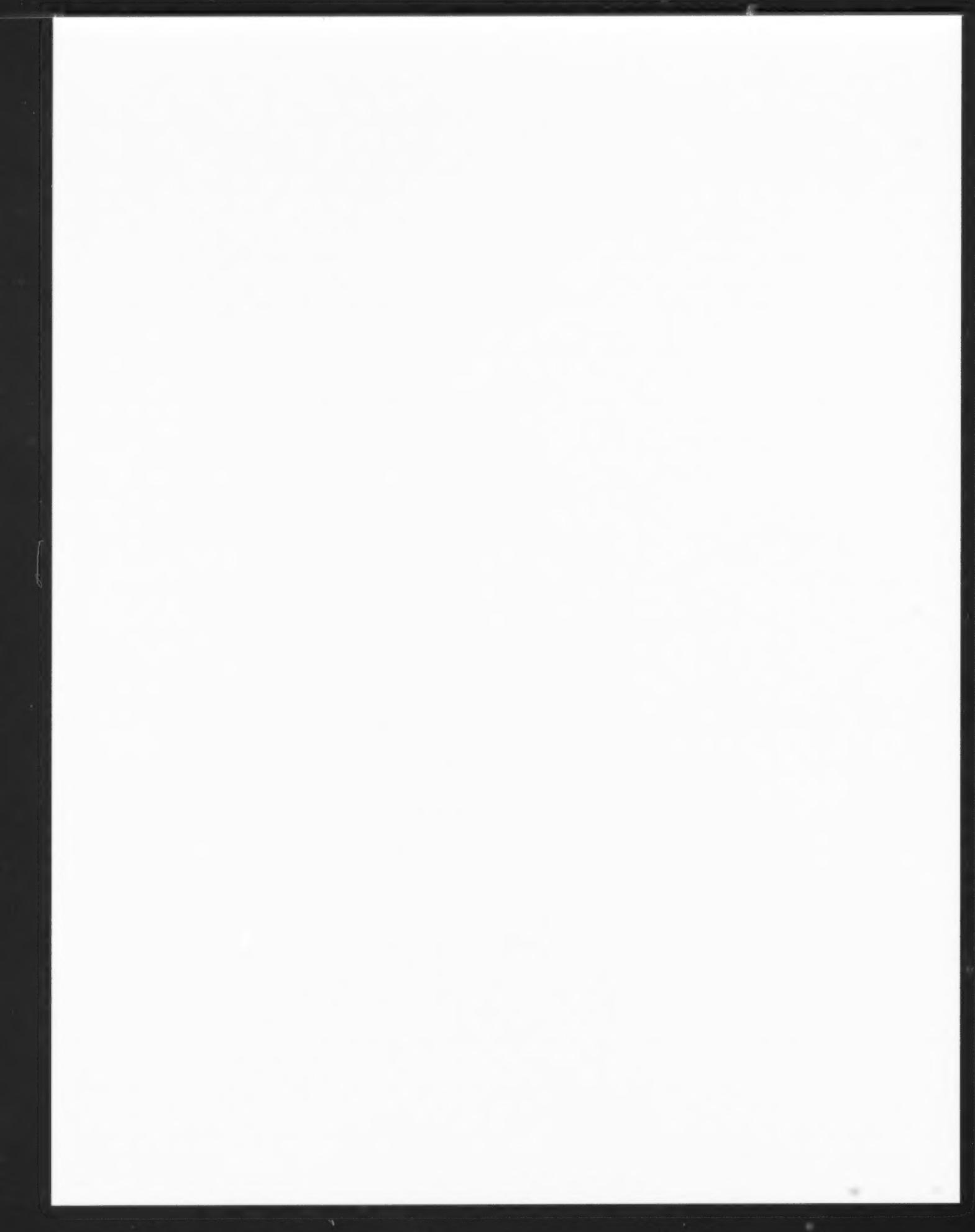
Documents reviewed to inform the identification of the priority water using sectors:

- "Current and Future Water Use in Alberta." March 2007. Prepared by AMEC Earth and Environmental for Alberta Environment. Available online at www.waterforlife.gov.ab.ca/watershed/current-future_water_use.html.

Documents reviewed and used in the preparation of the Annotated Table of Contents:

- Canadian Association of Petroleum Producers (CAPP): 2006 CAPP Stewardship Progress Report. www.capp.ca/raw.asp?x=1&dt=NTV&e=PDF&dn=116882
- City of Calgary: Draft Water Efficiency Plan. www.calgary.ca/docgallery/BU/water_services/conservation/planning/water_efficiency_plan.pdf
- City of Toronto: Water Efficiency Plan. www.toronto.ca/watereff/plan.htm
- Colorado Water Conservation Board: Water Conservation Plan Development Guidance Document (2005). <http://cwcb.state.co.us/Conservation/Conservation/hb1365/index.htm>
 - Water Conservation Model Plan Template and Worksheets (this model plan is part of the document). <http://cwcb.state.co.us/Conservation/Conservation/hb1365/pdf/modelPlan.pdf>
- Dow Canada: Committed to Sustainable Development. <http://www.dow.com/commitments/intro/index.htm>
- Environment Canada: Pollution Prevention Planning Handbook. "Table of Contents for a Model Pollution Prevention Plan."
- www.ec.gc.ca/nopp/docs/P2P/hbook/En/TAB4_B.cfm
- Syncrude Canada Ltd.: Sustainability Report. www.syncrude.ca/users/folder.asp?FolderID=5713
- TransAlta Corporation: 2005 Report on Sustainability. [www.transalta.com/transalta/webcms.nsf/AllDoc/FED665D8F660BD278725723A0067560B/\\$File/TransAlta2005RS.pdf](http://www.transalta.com/transalta/webcms.nsf/AllDoc/FED665D8F660BD278725723A0067560B/$File/TransAlta2005RS.pdf)
- United States Environmental Protection Agency: Water Conservation Plan Guidelines. www.epa.gov/WaterSense/docs/title_508.pdf







ALBERTA WATER COUNCIL

Website: www.AWChome.ca

SEPTEMBER 2008